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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

By

  
Amelia Groth

Attorney Docket No. 407T-895820US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ben Shen, et al.

Application No.: 09/477,962

Filed: January 5, 2000

For: BLEOMYCIN GENE CLUSTER  
COMPONENTS AND THEIR USES

Examiner: Kathleen M. Kerr

Art Unit: 1652

LETTER TO OFFICIAL DRAFTSPERSON

#18  
192  
5/14/03

Attn:

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Applicant hereby submits 19 sheets of formal drawings to be made of record in the above-identified case.

Respectfully submitted,



Irene Pleasure, J.D., Ph.D.

Reg. No. 45,506

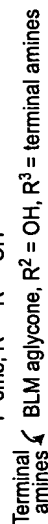
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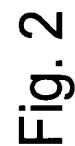
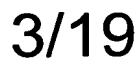


Fig. 2



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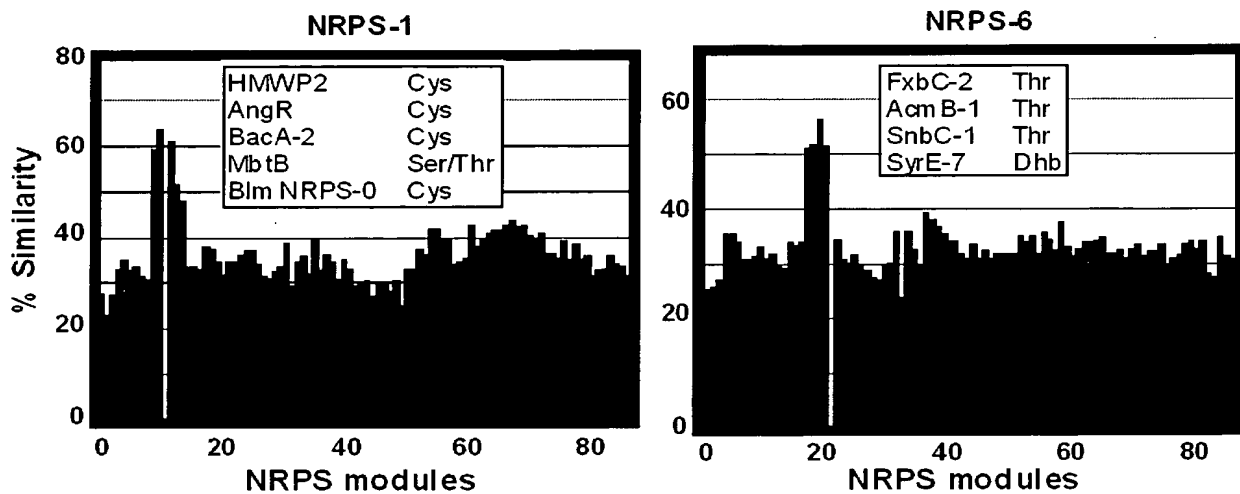


Fig. 3A

		Residues (PheA numbering) (16)							
NRPS module	Substrate	236	239	278	299	301	322	330	331
HMWP2	Cys	L	Y	N	M	S	M	I	W
AngR	Cys	L	Y	N	M	S	M	I	W
BacA-2	Cys	L	Y	N	L	S	L	I	W
MbtB	Ser/Thr	M	L	N	A	G	L	V	H
<b>Blm NRPS-0</b>	<b>Cys</b>	L	Y	H	L	G	L	P	W
<b>Blm NRPS-1</b>	<b>Cys</b>	L	Y	N	L	S	L	I	W
SyrE-7	Dhb	F	W	N	V	G	M	V	H
AcnB-1	Thr	F	W	N	V	G	M	V	H
SnbC-1	Thr	F	W	N	I	G	M	V	H
FxbC-2	Thr	F	W	N	V	G	M	V	H
<b>Blm NRPS-6</b>	<b>Thr</b>	F	W	S	V	G	M	I	H

Fig. 3B



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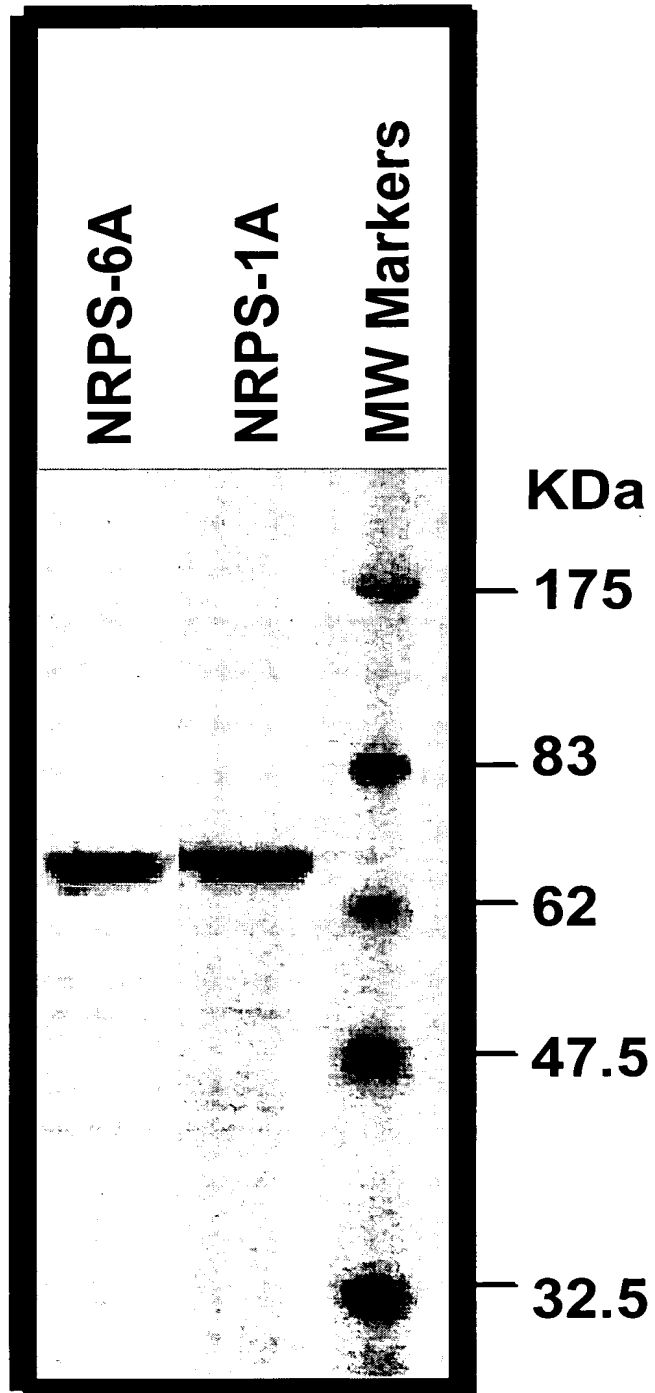


Fig. 3C



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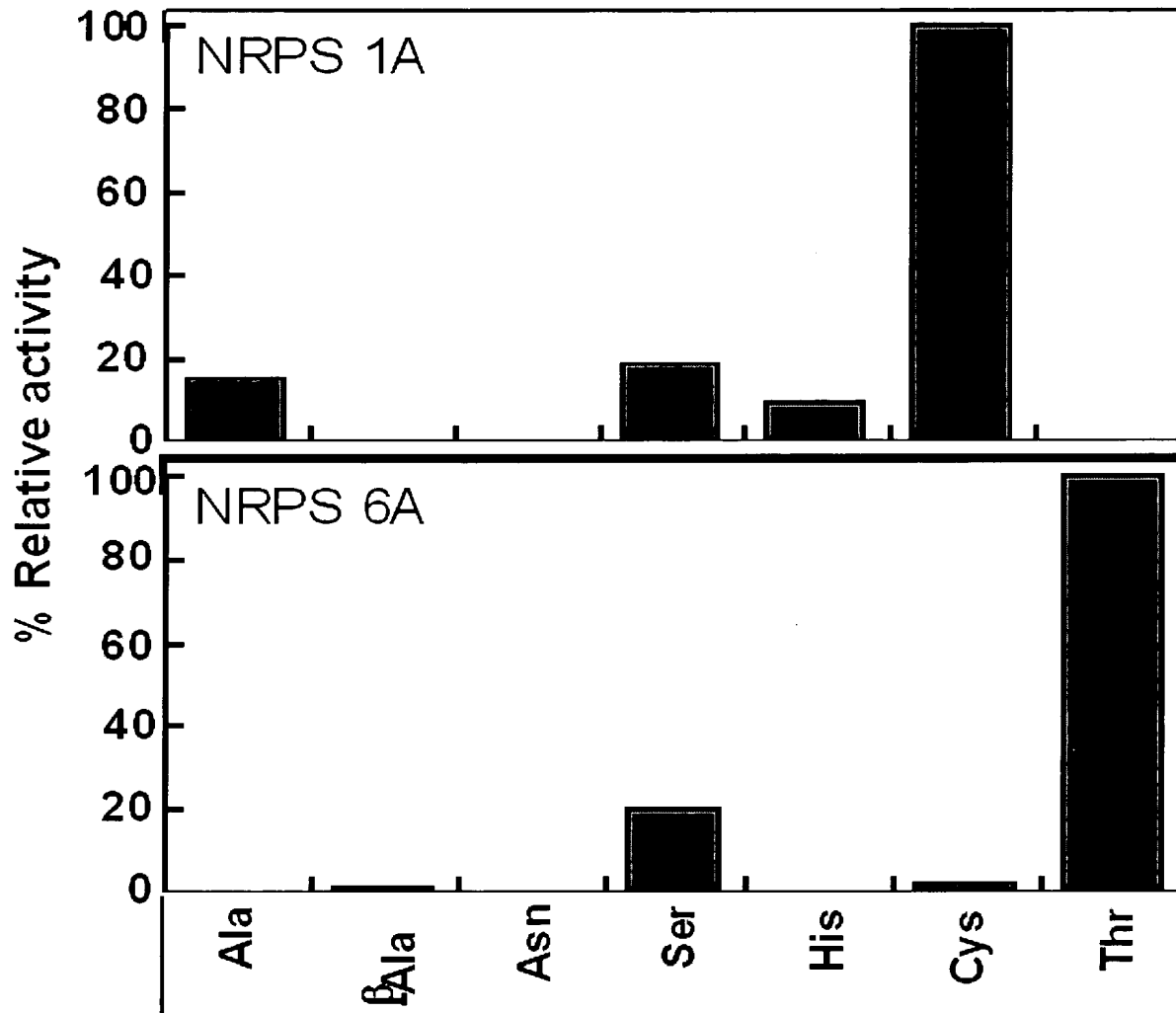
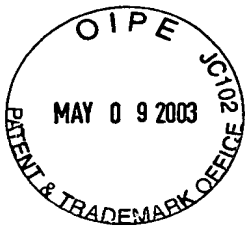


Fig. 3D



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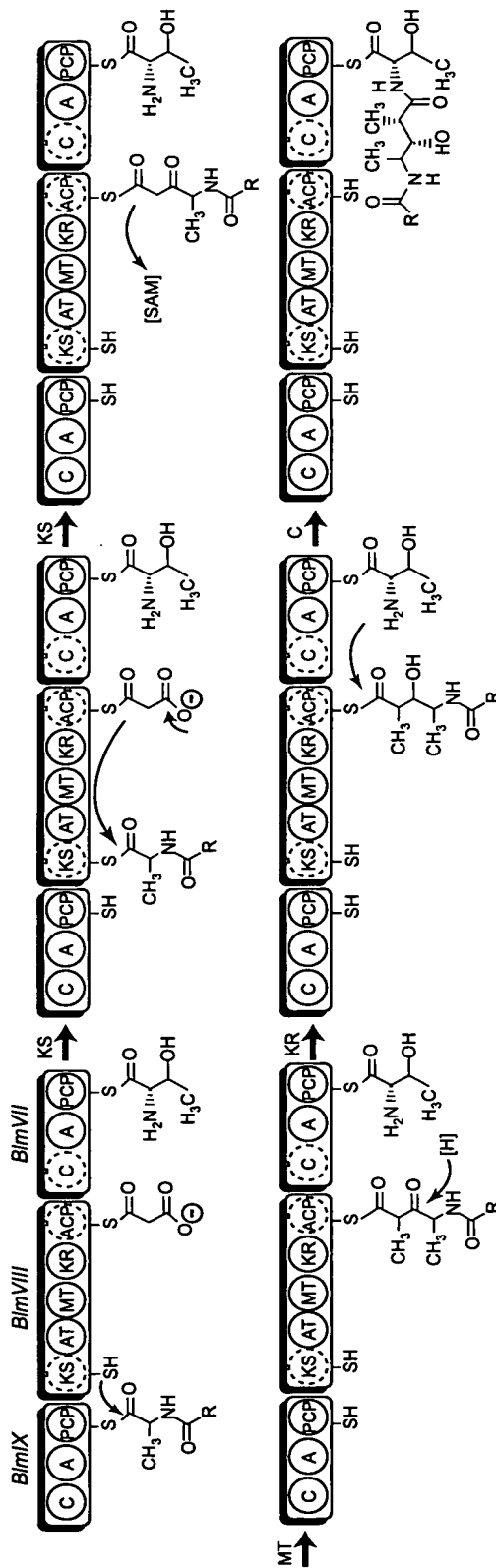


Fig. 4





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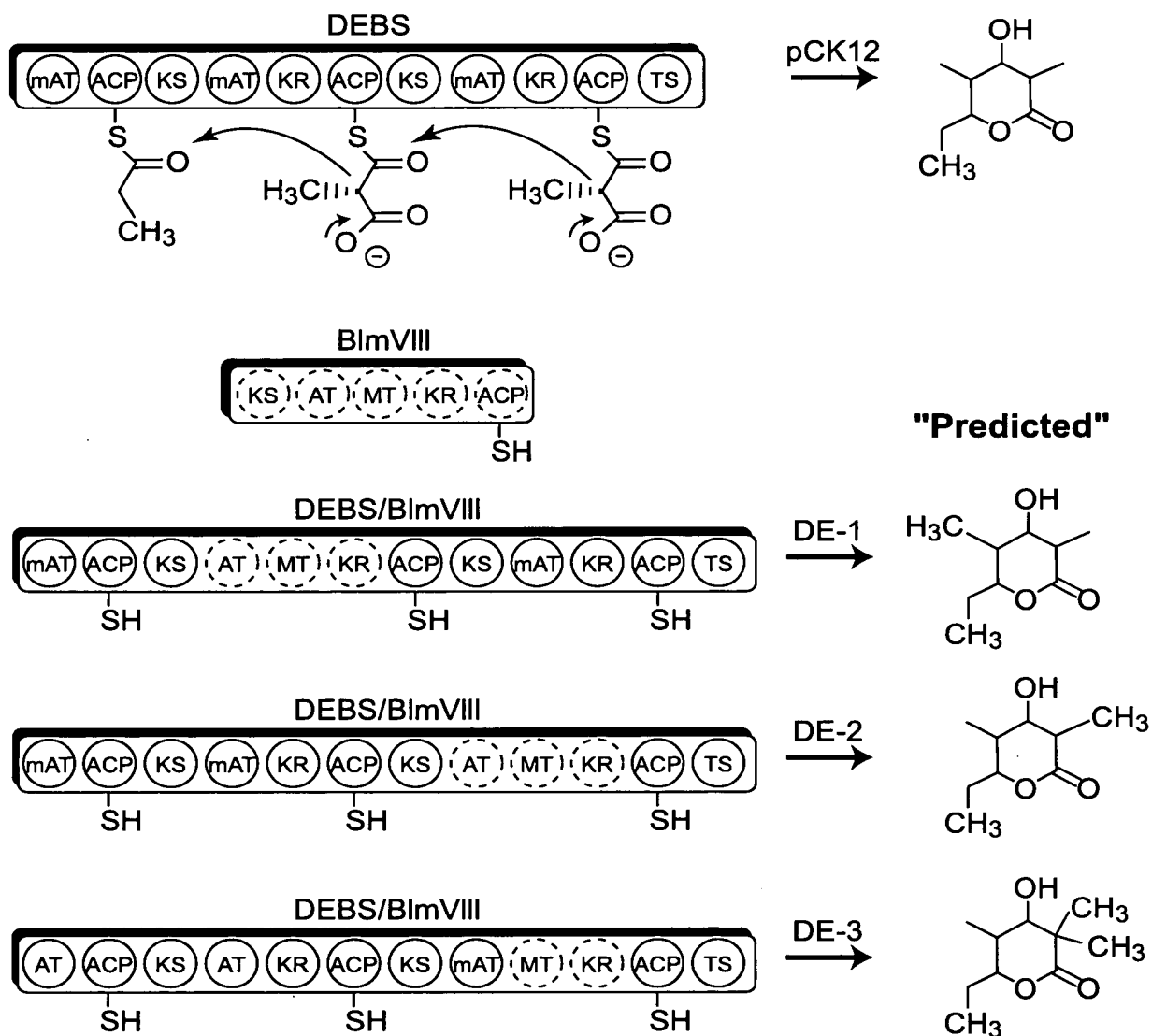
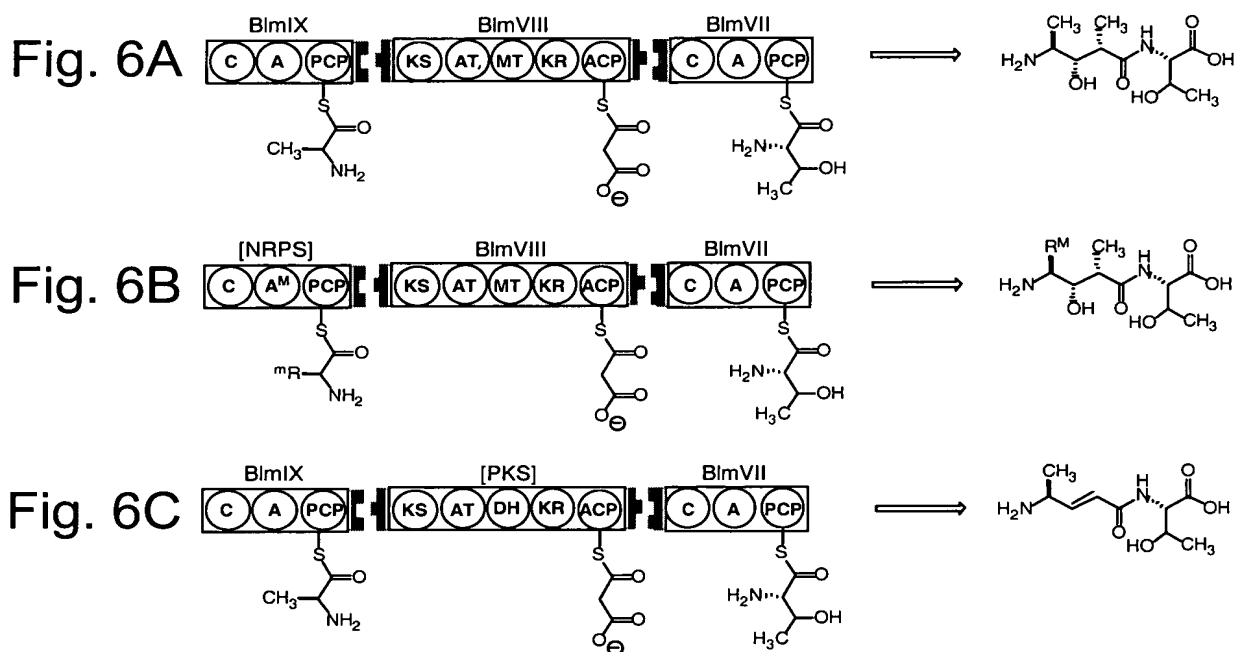


Fig. 5

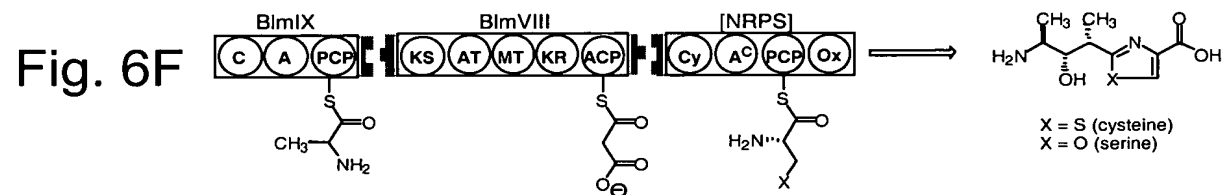
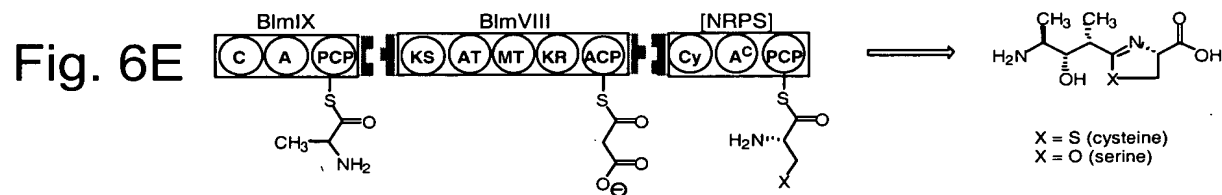
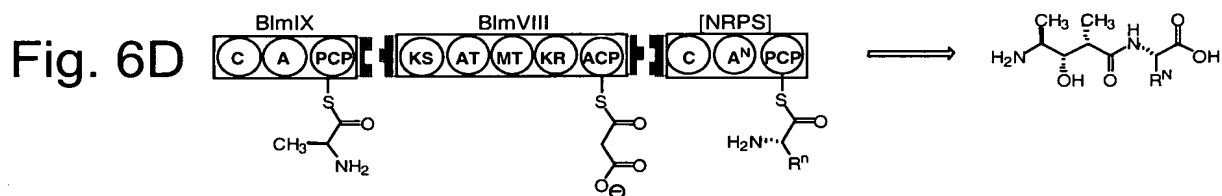


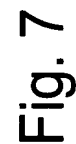
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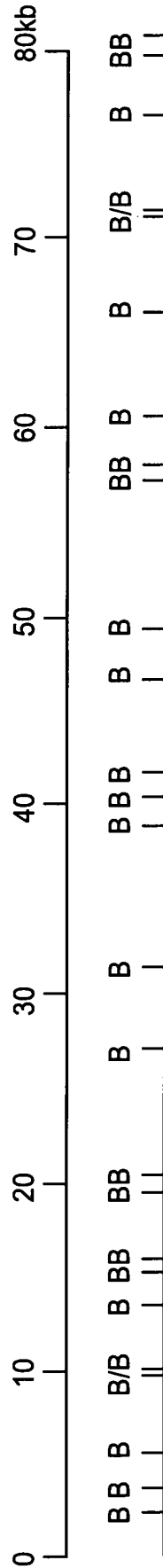




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Fig. 8A

FIG. 8A/12/19

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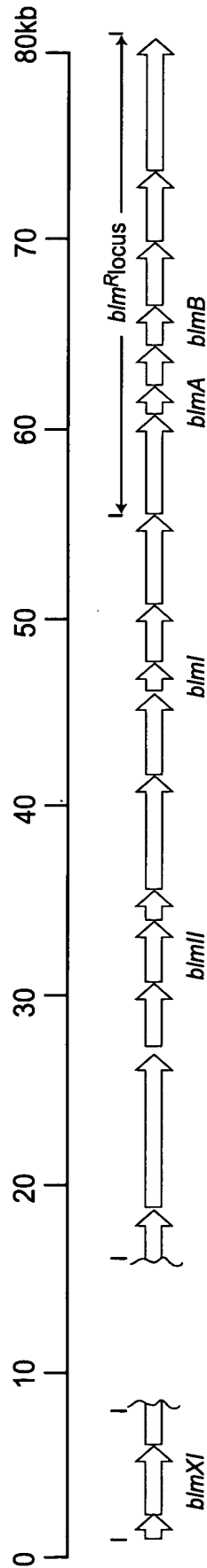


Fig. 8B



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-18 RBS

CC GGACGG CGGCCCGCTC

ATGAGCGCCCCGCGGGGCGAGCGGACCGCGCGCGCTCGAACGCGACATCGCGCGATCTGGGCGGAGACCGCTCGGCAGGGACAGCGTC 93

M S A P R G E R T R R R A L E R D I A A I W A E T L G R D S V

GGCCCGCACGAGGACTTGGCGCGCTGGGCGGCAACTCATCCAGCATCAAGATCACCAACCGGGTGGAGGAACCTGTCGACGCGGAGCTG 186

G P H E D F A A L G G N S I H A I K I T N R V E E L V D A E L

TCCATCGCGTCTGCTCGAGACGCGCAACGCTGGCGGCGATGACGGACCAAGTCCAGCCACGCTCACGGGGGAGCGGGACCGGTGA 273

S I R V L L E T R T V A G M T D H V H A T L T G E R D R \*

Fig. 8C

Grs-2	3045-ISIGTEYVAP	TMLEGKLEEIWKDV	GLQRVGIHDDFFFTIGGHSL	-3089
Srfa-3	960-DQLAEWIGP	RNEMEETIAQIWSEV	GRKQIQIHDDFFALGCHSL	-1004
Vir-S	557-GRSVEGRGV	PPTPQQEILASLFAEV	GLSKVGIHEDFFDLGGHSL	-601
Saf-B	1661-LDPGQDYL	APRNELEARIATWEG	LRERVGVHDSFFDLGGNSL	-1705
BlmI	1-MSAPRGERT	RERALERDIAAIWAET	GRDSVCPHEDFAALGGNSI	-45
consensus	1-i	g eyvapR le ia iw evLgr	rvGiHddff lGGhSl	-45

Grs-2	3090-KAMAVISQVH	KECQTEVPLRVLFET	PTIQGLAKYIEETDTEQYMA	-3134
Srfa-3	1005-KAMTAVPH	.QQELGIDLPLVLLF	EAPTIAGISAYLKNNGSDGLQD	-1048
Vir-S	602-LATRLTSR	IRTVLGAETAVRDLF	EAPTEALAEETLEEAREVRPAL	-646
Saf-B	1706-LATRLAT	RLAATLQVQAGVRTV	FEHRTVAAQAAHFTQATKTHQAH	-1750
BlmI	46-HAIK	ITNRVEELVDAEL	SIRVLLLETRIVAGMTDHHATLTGERDR	-90
consensus	46-kAmrv	srv l ev vrvlfe	pTvagla i g t	-90

Fig. 9



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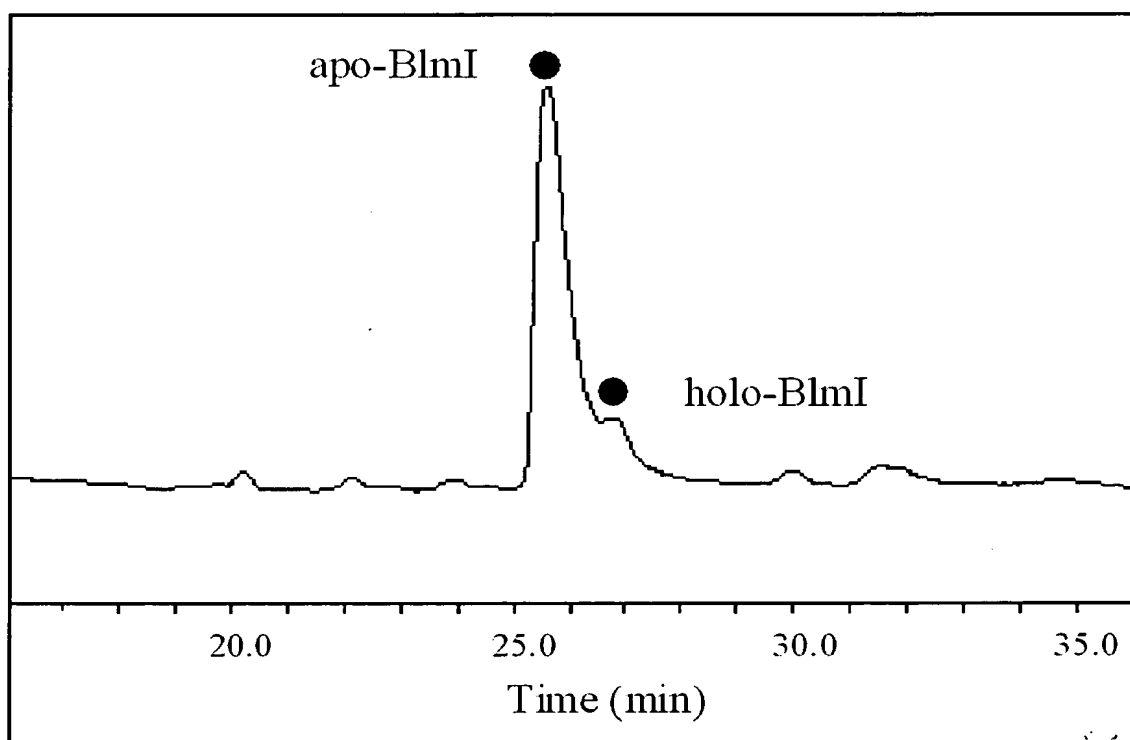


Fig. 10A





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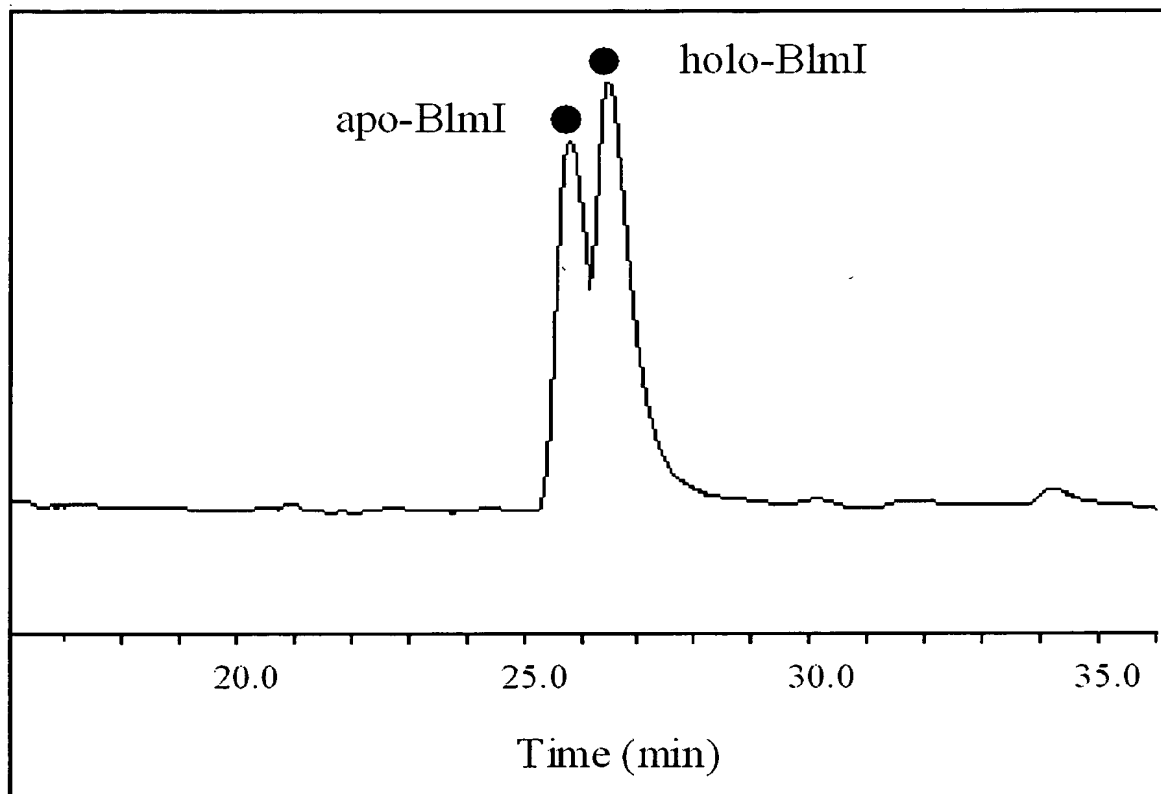


Fig. 10B



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## Nonreiterative Type I Modular Protein Template

Fig. 11A  
**PKS**

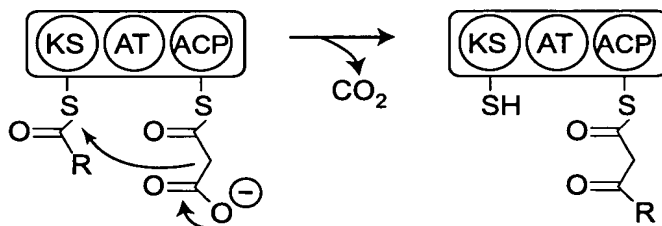
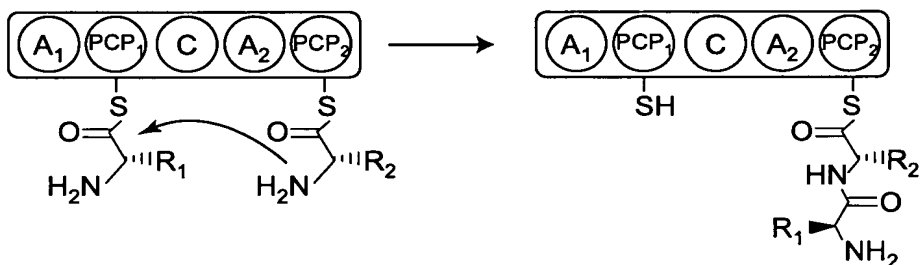


Fig. 11B  
**NPRS**



## Iterative Type II Protein Complex

Fig. 11C  
**PKS**

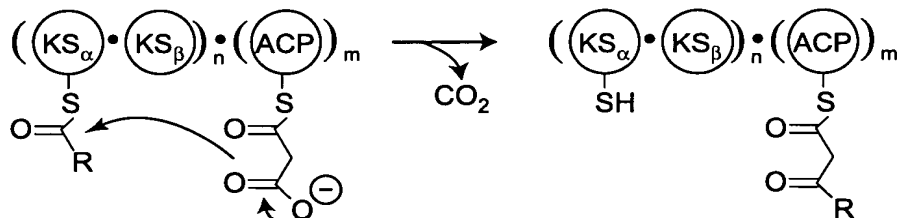
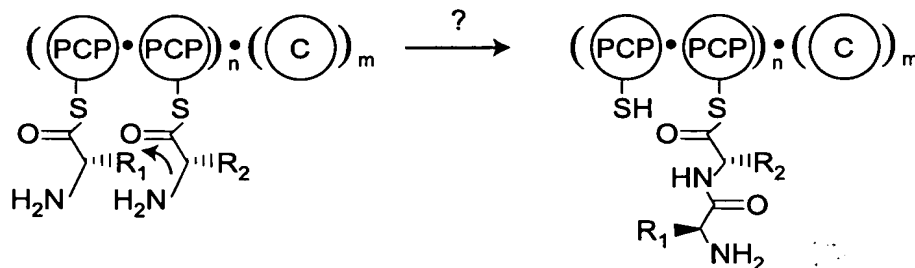


Fig. 11D  
**NPRS**





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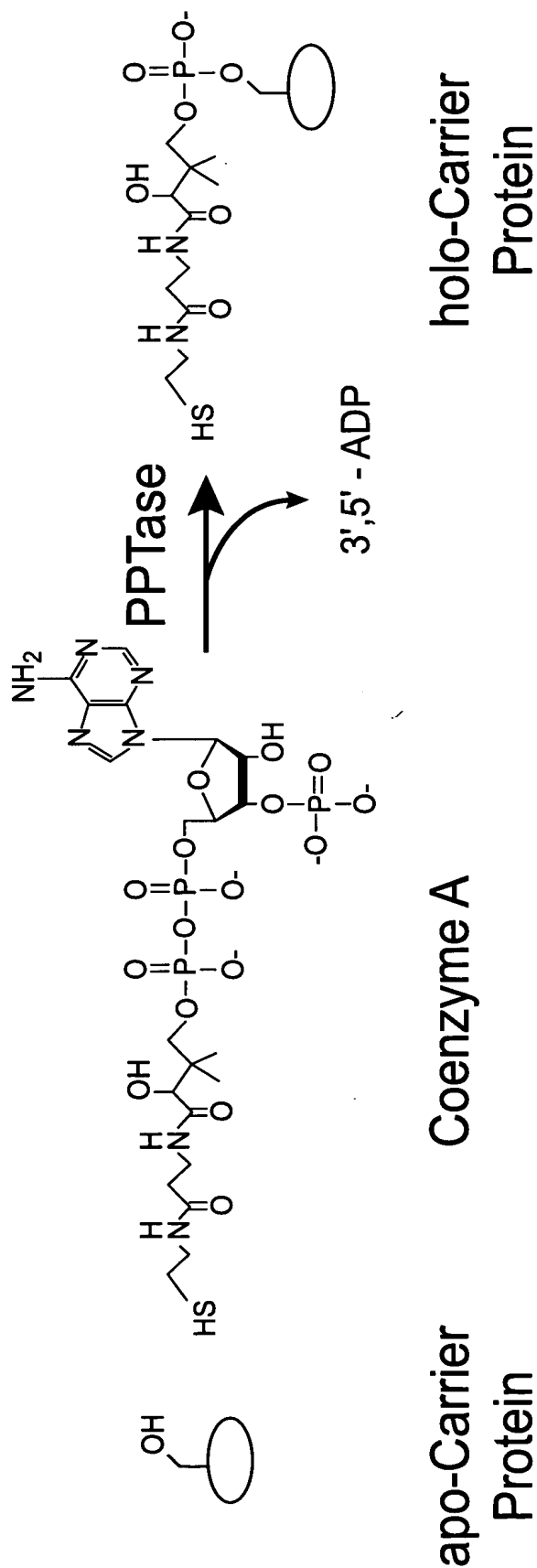
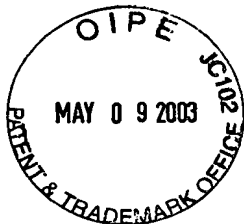


Fig. 12



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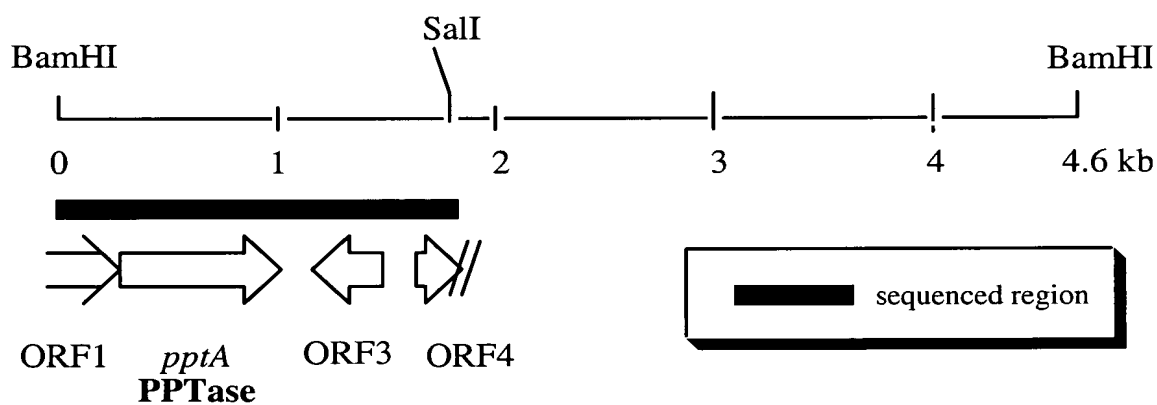


Fig. 13